Mather Air Force Base

Size: 5,716 acres
Mission: Conducted Navigation and Electronic Warfare officer training
HRS Score: 28.90; placed on NPL in July 1987
IAG Status: IAG signed in 1989
Contaminants: Solvents, jet fuel, petroleum hydrocarbons, plating waste, and heavy metals
Media Affected: Groundwater and soil
Funding to Date: $142.4 million
Estimated Cost to Completion (Completion Year): $106.8 million (FY2005)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1999

Sacramento, California

Restoration Background

In December 1988, the BRAC Commission recommended that Mather Air Force Base be closed. Before becoming inactive in FY93, the installation housed the 323 Flying Training Wing, as well as a reserve air refueling group and an Army National Guard aviation unit.

Environmental studies conducted since FY82 have identified 88 sites at the installation. The sites were consolidated into five operable units (OU): OU1, Aircraft Control and Warning System; OU2, Groundwater; OU3, Soil; OU4, Landfill; and OU5, Basewide. Prominent site types include landfills, underground storage tanks (UST), fire training areas, a trichloroethene (TCE) disposal site, a weapons storage area, wash-rack areas, spill areas, and waste pits. Petroleum hydrocarbons and chlorinated solvents are the primary contaminants affecting groundwater and soil.

Interim Actions included removing USTs and contaminated soil, supplying an alternative water supply to nearby residents, removing sludge from a former wastewater treatment plant, and removing petroleum product from soil by vapor extraction. Between FY84 and FY97, the installation removed all substandard USTs identified in the environmental studies.

In FY90, a RCRA Facility Assessment identified 48 solid waste management units (SWMU) and two areas of concern (AOC). Twenty-three of the SWMUs and both AOCs required further investigation. By FY94, Remedial Investigation and Feasibility Study (RI/FS) activities had been completed at OU4. In FY94, the regulatory agencies approved the final draft Record of Decision (ROD) for OU1.

In FY95 the regulatory agencies approved the final draft ROD for OU4. Construction was completed and Remedial Action (RA) began for OU1. Removal Actions were initiated to remediate petroleum contamination at several other sites. The installation's Site 29 soil vapor extraction (SVE) system has operated nearly continuously since August 25, 1995, and as of April 1997, had extracted approximately 240,000 pounds of total petroleum hydrocarbons and 1,370 pounds of benzene. Sludge from one site was analyzed before a Removal Action began and then was disposed of in an on-site landfill.

The installation formed a restoration advisory board (RAB) and a BRAC cleanup team (BCT) in FY94. The RAB, which consists of representatives of the public and a co-chair from the Air Force Base Conversion Agency, meets every 6 weeks. An Environmental Impact Statement has been prepared for the disposal and reuse of property at the installation. In FY96 and FY97, public meetings were conducted and revisions of the community relations plan were issued. The RAB was briefed on the Relative Risk Site Evaluations and informed of estimated cleanup times at various sites.

In FY96, the regulatory agencies approved the final ROD for OU2 and OU3. Three of the installation's landfills were consolidated, and an engineered cap was installed at two of the landfills. The installation also completed the RI for OU5. Remedial Design and Remedial Action (RD/RA) activities continued at all OUs. In addition, Remedial Action Plans were prepared for three sites.

FY97 Restoration Progress

The removal of four USTs was completed. Two oil-water separator sites were closed. The Proposed Plan and the draft ROD for OU5 were released, and a public meeting was held to solicit comments.

The pump-and-treat system for OU1 was modified to improve performance of the system in order to reach design capacity. The modification required discharge into Mather Lake instead of reinjection into the aquifer.

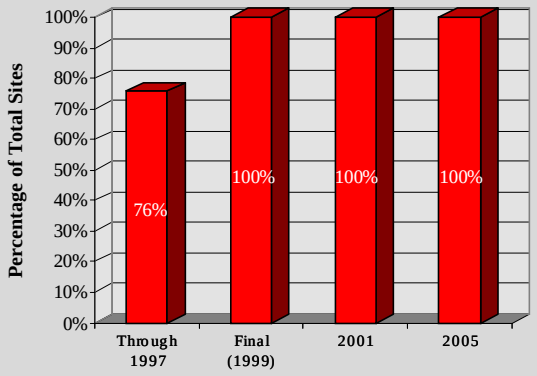
Construction of the pump-and-treat system for OU2 was initiated. An SVE/bioventing in situ system was installed at 11 sites.

A public meeting was held for the basewide OU Proposed Plan. The installation participated in informal and formal dispute-resolution procedures to resolve issues expeditiously with regulatory agencies. The BCT met every 6 weeks to review the program and environmental documents.

Plan of Action

- Remediate, by excavation, various stormwater-drainage channels in FY98
- Remediate the installation's firing and skeet ranges in FY98
- Complete RD/RA activities for OUs 1, 3, 4, and 5 by FY98
- Install SVE/bioventing in situ system at three sites in FY98
- Construct Phase II for OU2 in FY98-FY99, begin operation in FY98
- Complete RD/RA activities for all OUs by FY00

Sites Achieving RIP or RC Per Fiscal Year



Size: 4,616 acres
Mission: Provide airlift services for troops, cargo, equipment, passengers, and mail
HRS Score: 31.94 (Area D/American Lake Garden Tract); placed on NPL in September 1984.
42.24 (Wash Rack/Treatment Area); placed on NPL in July 1987; delisted from NPL in September 1996
IAG Status: Federal Facility Agreement signed in August 1989; Consent Decree with State of Washington signed in February 1992
Contaminants: VOCs, SVOCs, metals, petroleum/oil/lubricants, pesticides, herbicides, and radioactive waste
Media Affected: Groundwater and soil
Funding to Date: $18.3 million
Estimated Cost to Completion (Completion Year): $8.9 million (FY2016)
Final Remedy in Place or Response Complete Date: FY1996

Tacoma, Washington

Restoration Background

Environmental studies have identified 65 sites at McChord Air Force Base. Site types include fire training areas, spill areas, landfills, and waste pits. Two sites were listed on the National Priorities List (NPL): the AreaD/American Lake Garden Tract (ALGT) and Wash Rack/Treatment Area (WTA). Work began at the ALGT site in FY82, after trichloroethene (TCE) was detected in off-site residential wells. An on-site landfill historically used to dispose of general refuse during the 1960s and 1970s was identified as the source of the TCE plume.

The installation initiated the Remedial Investigation and Feasibility Study (RI/FS) for the ALGT site in FY87 and completed it in FY91. The installation designed a groundwater extraction-well network and contracted for its construction in FY92. In early FY94, the installation completed construction and began operating the groundwater treatment plant, which includes carbon adsorption treatment units.

The RI/FS for the WTA site began in FY90 and was completed in FY92. The WTA was used as an outdoor aircraft wash area. Historically, wash water from the area drained directly into dry wells. The Record of Decision (ROD) for one part of the WTA site determined that groundwater in the leach pits required only monitoring. A ROD for the other portion of the WTA site specified that fuel floating on the shallow water table was to be removed and that fuel-contaminated soil must be evaluated for cleanup. In FY93, the installation began a pilot-scale test to determine the feasibility of passive fuel recovery from the trenches. Activities completed during the pilot-scale study revealed that floating fuel had been removed or naturally attenuated to the extent practical, and that, because the fuel-contaminated soil was not acting as a secondary source of groundwater contamination, the soil did not warrant cleanup.

In FY95, the installation completed studies at the two State of Washington–listed sites (SS-34 and WP-44) to evaluate the feasibility of using bioremediation. In addition, an RI/FS recommending no further action at Site WP-44 was completed and approved by the state of Washington.

The Air Force and the regulatory agencies signed a joint Explanation of Significant Differences (ESD). The ESD explained the difference between the cleanup alternative initially selected in the ROD and the alternative implemented. The ESD also stipulated that the installation begin long-term monitoring (LTM) and natural attenuation to treat contamination at the WTA site. In FY95, the installation implemented LTM at the WTA site and requested that the site be removed from the NPL.

In FY96, McChord Air Force Base mailed restoration advisory board (RAB) contact cards to more than 10,000 local residences. Only two cards were returned from individuals interested in being members of a RAB. The installation continued to operate the groundwater treatment system at the ALGT site. LTM continued at SS-34 and WP-44, and the WTA sites. The installation signed a decision document designating no further action at the remaining four active sites. All 65 sites are classified as having Remedial Action in place. Effective September 26, 1996, the EPA removed the WTA site from the NPL.

FY97 Restoration Progress

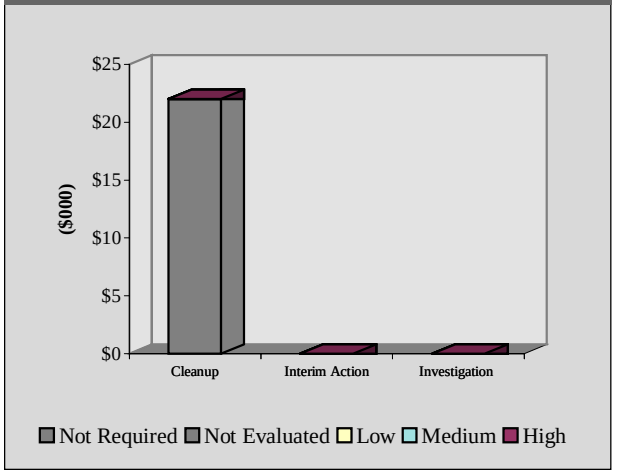
McChord Air Force Base continued operations at the ALGT groundwater treatment plant. The installation also continued the LTM program. McChord Air Force Base began evaluating natural attenuation of chlorinated solvents at ALGT. The base has asked the Region 10 EPA project manager to begin removing more than 1,000 acres of the Area D/American Lake Garden tract site from the NPL. Included in the 1,000 acres is an off-base residential area. Removing the residential area from the NPL should increase the residential property value, thereby helping the community.

Some activities scheduled for completion in FY97 were delayed because the Washington Department of Ecology changed its project managers for the base and was reluctant to sign a no-further-action decision document that might prevent it from enforcing cleanup of undiscovered future contamination.

Plan of Action

- Continue ongoing operations at the groundwater treatment plant at the ALGT in FY98
- Continue the installation's LTM program in FY98
- By FY99, obtain written concurrence from the regulatory agencies for closeout of 27 sites requiring no further action
- Complete the evaluation of natural attenuation of chlorinated solvents at ALGT

FY98 Funding by Phase and Relative Risk



McClellan Air Force Base

Size: 3,688 acres
Mission: Provide logistics support for aircraft, missile, space, and electronics programs
HRS Score: 57.93; placed on NPL in July 1987
IAG Status: IAG signed in 1989
Contaminants: Solvents, metal plating wastes, caustic cleaners and degreasers, paints, waste lubricants, photochemicals, phenols, chloroform, spent acids and bases, and PCBs
Media Affected: Groundwater and soil
Funding to Date: $360.7 million
Estimated Cost to Completion (Completion Year): $471.0 million (FY2033)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2033

Sacramento, California

Restoration Background

Environmental contamination at McClellan Air Force Base has resulted from sumps near industrial operations, landfills, leaks near industrial waste lines, surface spills, and underground storage tanks (UST). A study in FY79 detected groundwater contamination that led to the closure of two on-base and three off-base drinking-water wells. In addition to 373 acres of contaminated soil in the vadose zone, three large plumes of contaminated groundwater have been identified over 660 acres.

Sites at the installation were grouped into 11 operable units (OU), including an installationwide Groundwater OU. Preliminary Assessments and Site Inspections have been completed for all OUs, and the Remedial Investigation (RI) for five OUs has been completed. The first interim Record of Decision (ROD), signed in FY93, addressed polychlorinated biphenyl (PCB) contamination at OU B1. In FY95, the Groundwater OU interim ROD was signed. The installation has implemented 210 Interim Remedial Actions, including a landfill cap, construction of a groundwater treatment plant, and demolition of an electroplating facility. The UST program has removed or abandoned in place 210 USTs.

To streamline the decision-making process, the installation and regulatory agencies signed three consensus statements that establish background levels for inorganic contaminants in soil, develop a rationale for making decisions for no further investigation, and document the procedure for risk screening and Baseline Risk Assessments. Another streamlining effort resulted in the development of a basewide Engineering Evaluation and Cost Analysis for implementing soil vapor extraction (SVE) at McClellan Air Force Base.

In FY93, the installation was selected as a National Test Site for technologies that clean up chlorinated solvents and inorganic contaminants in soil and groundwater. Flameless thermal oxidation for SVE of gas and dual-phase extraction for groundwater and soil cleanup have been demonstrated successfully at the base and are now an integral part of the cleanup program.

During FY95, the installation converted its technical review committee into a restoration advisory board.

FY97 Restoration Progress

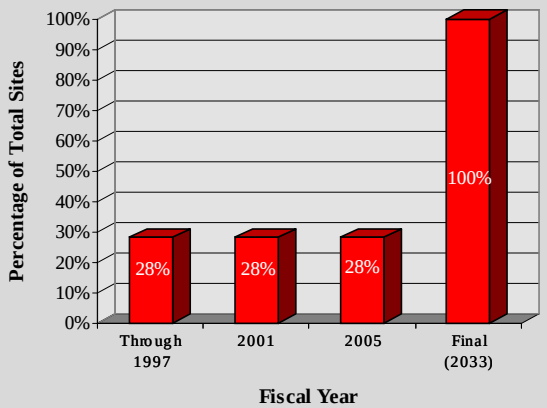
To date, over 700,000 pounds of contamination have been removed from the soil and groundwater at the base. Groundwater and soil cleanup continued with the operation of five existing SVE systems and a groundwater treatment system that pumped 700 gallons per minute of contaminated groundwater from 32 extraction wells. Two SVE systems began operation, and a dual-phase extraction system was installed to treat volatile organic compound (VOC)–contaminated soil and groundwater. Thirty-six on- and off-base groundwater wells were decommissioned, eliminating possible conduits for additional soil and groundwater contamination. Thirteen USTs were removed, and 33,000 feet of linear piping associated with the industrial waste line were inspected and 4,000 feet repaired. Investigative sampling for most of the base's industrial operations was completed. A treatment optimization strategy for groundwater cleanup was initiated. This strategy has saved $3 million to date. A strategy for landfill cleanup that will save McClellan over $130 million in cleanup cost was developed, and a Radiological Working Group was organized to set data quality objectives, background, and cleanup standards.

In September 1996, the base reported noncompliance in a discharge of treated groundwater into Magpie Creek. The noncompliance occurred during groundwater treatment plant modifications undertaken to incorporate more cost-effective carbon treatment into the system. On 24 February 1997, EPA assessed a $15,000 penalty under the Federal Facility Agreement. The installation elected not to invoke dispute resolution and has accepted all responsibility for the noncompliance.

Plan of Action

- Design and install Phase II of the groundwater actions in FY98, in compliance with Interim ROD requirements for groundwater
- Install 13 SVE systems by the end of FY99
- Complete all RIs by FY99
- In FY99, complete a ROD for remediation of VOCs that allows final actions for soil before the installationwide ROD, addressing restoration of all 11 OUs, is completed in FY03
- Receive congressional approval, and pay EPA stipulated penalties

Sites Achieving RIP or RC Per Fiscal Year

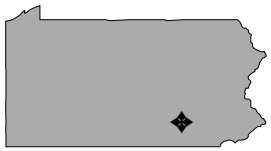


Mechanicsburg Naval Inventory Control Point

Formerly Mechanicsburg Ships' Parts Control Center

NPL

Size: 824 acres
Mission: Provide inventory management and supply support for weapons systems
HRS Score: 50.00; placed on NPL in May 1994
IAG Status: Federal Facility Agreement under negotiation
Contaminants: PCBs, heavy metals, pesticides, VOCs, SVOCs, and dioxin
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $16.3 million
Estimated Cost to Completion (Completion Year): $34.4 million (FY2008)
Final Remedy in Place or Response Complete Date: FY2008



Mechanicsburg, Pennsylvania

Restoration Background

Historical defense industrial and inventory disposal operations have caused contamination at this installation. Environmental investigations conducted since FY84 have identified 15 CERCLA sites.

In FY89, the installation completed a Remedial Investigation and Feasibility Study (RI/FS) for Site 9, the Storm Water Drainage Ditch. Subsequently, Removal Actions were conducted to remove polychlorinated biphenyl (PCB)–contaminated soil from a portion of the ditch and to install fencing and a Gabion dam. In FY92, the installation completed an RI/FS for Site 3. In FY93, it completed an RI at Site 1. The Human Health Risk Assessment for Site 1 began in FY94. The Remedial Design (RD) for Site 9 was completed in FY93, and additional contaminated soil and sediment were removed in the Remedial Action (RA). The installation also completed RD/RA at Site 10 to remove leaking underground storage tanks and contaminated soil.

In FY93, the installation began an Interim Remedial Action (IRA) at Site 3, the Ball Road Landfill and Burn Pits, by removing contaminated soil and treating it by bioremediation for petroleum products and organic compounds. The installation is discussing additional remedial processes with state and federal regulatory agencies to address all contaminants of concern.

In FY95, a Time-Critical Removal Action was conducted at the Tredegar Industries, Inc., property located next to the installation. Approximately 600 tons of PCB-contaminated soil were removed.

The technical review committee, formed in FY88, helped foster good working relationships among the regulatory agencies, local municipalities, and the installation. Effective partnerships and community involvement are just two of the positive results of those good relationships. To establish greater community involvement, the installation also established a restoration advisory board (RAB) in FY95. The RAB meets bimonthly.

During FY96, the installation initiated a basewide Ecological Risk Assessment (ERA) and started work on the site management plan. The installation prepared a design for groundwater modeling of a landfill at Site 3 and began to conduct the Focused FS (FFS). Additional sampling of the biocell soil was performed at Site 3, and long-term monitoring continued at Site 9. The RI/FS for Site 9 did not begin during FY96 because completion of the basewide ERA is necessary to determine whether additional work is required.

FY97 Restoration Progress

The Human Health Risk Assessment at Site 1 was completed, and the installation conducted an IRA at Site 11. On-board review of work plans for RIs at Sites 12 through15 was implemented. The installation continued negotiations with EPA toward a final Federal Facility Agreement.

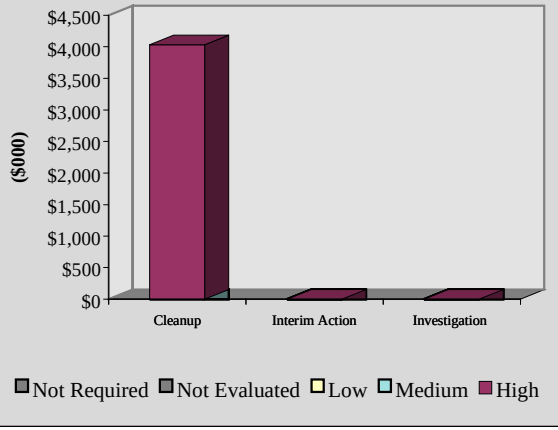
Monthly partnering efforts with the Navy and regulatory agencies led to a consensus approach to resolving differences. To provide the community with a better understanding of the installation's sites, a bus tour at all 15 sites was conducted for the RAB and other community members.

Some activities scheduled for completion in FY97 were delayed because the EPA's review of the landfill modeling took longer than expected.

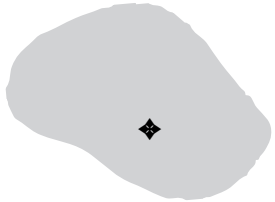
Plan of Action

- Complete the basewide ERA and site management plan in FY98
- Complete the FFS and RD and begin RA at Site 3 in FY98
- Submit final PRAP and Record of Decision for Site 3 in FY98
- Complete the RI/FS for Sites 12 through 15 in FY98
- Complete RD for Site 3 in FY98

FY98 Funding by Phase and Relative Risk



Size: 1,535 acres
Mission: Provided aviation support services
HRS Score: NA
IAG Status: None
Contaminants: Heavy metals, pesticides, PCBs, and petroleum/oil/lubricants
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $15.2 million
Estimated Cost to Completion (Completion Year): $0 (FY1997)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1997



Midway Island

Restoration Background

In 1940, a Naval Station was established at Midway Island. In 1978, the Naval Station was redesignated as the Naval Air Facility. The Navy operated and maintained facilities and provided services and materials to support aviation activities. Since FY88, environmental studies at Midway Naval Air Facility have identified 42 sites. Site types include landfills, disposal and storage areas, a former power plant, a rifle range, and pesticide spill areas.

In July 1993, the BRAC Commission recommended closure of the facility. The installation was transferred to the U.S. Fish and Wildlife Service for use as a national wildlife refuge. The installation was closed in FY93.

An Environmental Baseline Survey was completed in FY94, and a Human Health Risk Assessment was completed for all 42 sites in FY95. Representatives of the Navy, EPA, and other federal agencies formed a partnership that has successfully reduced cleanup costs through cooperative decision-making. Because Midway Island is remote and sparsely populated, no local community issues affect it. The installation does not have a restoration advisory board (RAB) because there are neither regulatory agencies with authority over the area nor an affected community. An information repository was established at the University of Hawaii at Manoa in FY95.

In FY93, the installation formed a BRAC cleanup team (BCT) that includes representatives from the Navy and EPA Region 9. The BCT meets quarterly to review the cleanup status and develop the strategy for future cleanup.

FY97 Restoration Progress

Demobilization of the Navy from the Midway Naval Air Facility occurred in June 1997. All cleanup efforts were completed by this time. The Baseline Ecological Risk Assessment for one site was completed. Remedial Investigations and Feasibility Studies were performed for five sites. Removal Actions were completed to remove contaminated soil from eight sites, cap landfills at two sites, remove drums from four sites, remove marine debris from four sites, and cap abandoned outfalls at one site. The complete remediation of soil and groundwater at 15 underground storage tank sites was accomplished.

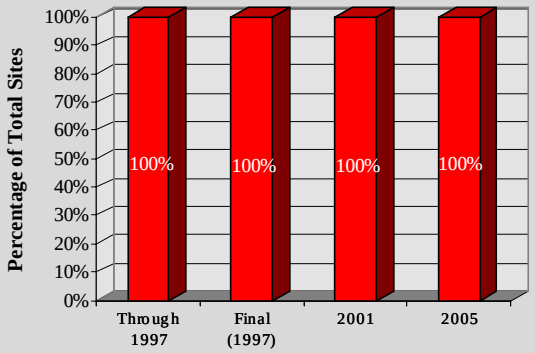
Cost-effective cleanup strategies were developed at quarterly meetings with regulators and stakeholders. A contractor was used for many of the environmental cleanup actions. Technological initiatives included use of an on-site laboratory and installation of a soil vapor extraction and bioslurping system. A direct-push geoprobe was utilized for site characterization.

In FY97, the BCT agreed on closure of all restoration sites and maintenance of long-term monitoring (LTM) at two of the 42 sites (Site 1 and 2 landfills) until summer FY98 and terminated the FIVE cleanup system of petroleum, oil, and lubricants for underground and aboveground storage tanks. The BCT finalized the last BRAC Cleanup Plan in March and continues to work on the cleanup closure status report. By the end of FY97, all environmental work at Midway was complete with the exception of the LTM at Sites 1 and 2.

Plan of Action

- Complete LTM of Site 1 and 2 landfills in FY98
- Complete cleanup closure status report in FY98

Sites Achieving RIP or RC Per Fiscal Year



Milan Army Ammunition Plant NPL

Size: 22,436 acres
Mission: Load, assemble, pack, ship, and demilitarize explosive ordnance
HRS Score: 58.15; placed on NPL in July 1987
IAG Status: IAG signed in 1989
Contaminants: Munitions-related wastes, heavy metals, solvents, paints, thinners, and acids
Media Affected: Groundwater and soil
Funding to Date: $70.9 million
Estimated Cost to Completion (Completion Year): $267.7 million (FY2033)
Final Remedy in Place or Response Complete Date: FY2005

Milan, Tennessee

Restoration Background

Preliminary Assessment and Site Inspection activities conducted at Milan Army Ammunition Plant in FY87 identified 25 sites requiring further investigation. The installation divided the sites into five operable units (OU): three OUs associated with the O-Line Ponds Area, one OU for the Northern Area, and one OU for the southern area. Installation soil and groundwater are contaminated with lead, other heavy metals, and explosive compounds. Contamination exists throughout the loading, assembling, and packing lines and at the open-burn and open-detonation area.

A Remedial Investigation and Feasibility Study (RI/FS) began in FY88. Representatives of EPA and state regulatory agencies approved the RI report in FY92. The report recommended no further action at three sites, Remedial Design and Remedial Action (RD/RA) for the O-line ponds and associated groundwater, and collection of additional RI data for the remaining sites.

In FY91, the city of Milan discovered explosive-compound contamination in its municipal water supply wells. In FY93, representatives of the Army, the city of Milan, EPA, and the state of Tennessee completed a contingency plan to protect the municipal water supply. The Army provided $9 million to the city of Milan for development of new municipal water sources. In FY95, the Army and regulators signed a Record of Decision (ROD), and construction continued on the new municipal water system. To help prevent further off-site migration of contaminated groundwater, the installation constructed and began operating an ultraviolet oxidation treatment system for groundwater.

Interim Actions completed before FY95 include removal of underground storage tanks, capping of abandoned O-line ponds to prevent entry of contamination into the groundwater, and removal of contaminated installation drinking water wells.

The installation also began RD activities for a carbon treatment system for groundwater at the Northern Boundary Site. An innovative technology demonstration began in FY95 to analyze the effectiveness of phytoremediation for the treatment of explosives-contaminated groundwater.

In FY96, the installation completed the design of a groundwater treatment plant for the Northern Boundary Site (OU3). The phytoremediation demonstration was expanded to a 15-month pilot-scale program. In addition, the installation initiated innovative bioremediation efforts that entail open-windrow composting of explosives-contaminated soil in the Northern Industrial Area. The installation also initiated fieldwork for an RI to address on-post soil source areas and off-post groundwater contamination.

A restoration advisory board (RAB) was formed in FY94. In FY96, the RAB continued to meet quarterly and conduct tours of the installation for interested parties. The installation also continued to solicit new members for the RAB.

FY97 Restoration Progress

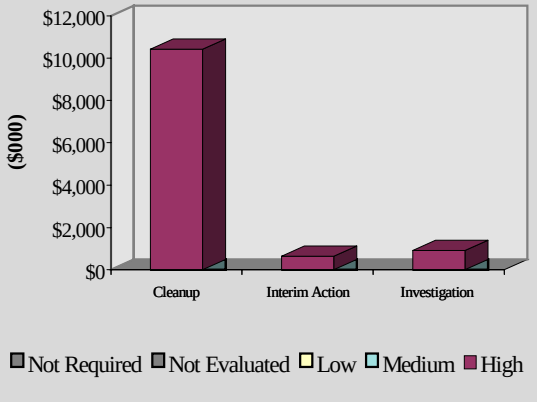
The installation started construction of a groundwater treatment plant for the Northern Boundary Site (OU3). The installation also completed the OU2 capping project and began the presumptive carbon treatment remedy. Based on the results of the demonstration, innovative phytoremediation techniques were implemented. Project managers met every 2 months to discuss issues that could either slow down the cleanup process or cause additional cost, throughout FY97. The public and RAB members were given tours of the phytoremediation demonstration project in FY97.

The state of Tennessee worked closely with the installation to make the groundwater treatment plants operational. The first three activities on the current plan of action were scheduled for completion in FY97. They were delayed because of funding constraints and the emergence of technical issues concerning discharge limits.

Plan of Action

- Complete construction and startup of the groundwater treatment plant for the Northern Boundary Site (OU3) by the end of FY98
- Complete RI/FS for OU5 by FY98
- Complete the phytoremediation pilot-scale testing of FY98
- Begin bioremediation of explosives-contaminated soil at the installation's Industrial Area (OUs 3 and 4) in FY99
- Complete the ROD for the western boundary for OU4 in FY99
- Operate and maintain the groundwater treatment plant and cap for the former O-Line Ponds Area
- Complete construction of bioremediation system for the Southern Study Area in FY99

FY98 Funding by Phase and Relative Risk



Minneapolis-St. Paul Air Reserve Base

Also known as Small Arms Range Landfill and formerly known as Twin Cities Air Force Base

NPL

Size: 280 acres
Mission: Provide tactical airlift support
HRS Score: 33.70; placed on NPL in July 1987
IAG Status: None
Contaminants: Petroleum/oil/lubricants, spent solvents and cleaners, battery acid, paint wastes, PCBs, and chlorinated hydrocarbons
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $4.2 million
Estimated Cost to Completion (Completion Year): $0.6 million (FY2005)
Final Remedy in Place or Response Complete Date: FY1996

Minneapolis, Minnesota

Restoration Background

The Minneapolis-St. Paul Air Reserve Base in Minneapolis, Minnesota, is a small base that has provided support to the military since 1955. The primary area of environmental concern at the installation has been the Small Arms Range Landfill, located on a noncontiguous property 2 miles from the main installation on the Minnesota River. The landfill was used as a solid waste disposal area from 1963 to 1972 and contains primarily general refuse. However, the landfill also may have been used to dispose of industrial wastes. Groundwater investigations at monitoring wells around the landfill have detected low concentrations of volatile organic compounds (VOC).

The landfill has undergone a Preliminary Assessment and Site Inspection, followed by a Remedial Investigation and Feasibility Study. A Proposed Plan was completed in FY91, and the Record of Decision (ROD) was signed in early FY92.

The Remedial Design and Remedial Action (RA) for the landfill, including design and construction of a groundwater and surface-water monitoring program, coupled with natural attenuation, was completed in FY92. Access to the landfill was controlled by constructing a fence at the site. In FY94 and FY95, the VOC levels detected in groundwater samples from the landfill were all below the levels established in the ROD.

The installation has one other site of interest (not listed on the National Priorities List [NPL]), a former spill area. Groundwater contaminants associated with this area are petroleum/oil/lubricants. The RA implemented in FY91 included a groundwater extraction and treatment system to contain, extract, and treat free product at the site.

In FY96, the installation published in the Federal Register a notice of intent to delete the base from the NPL.

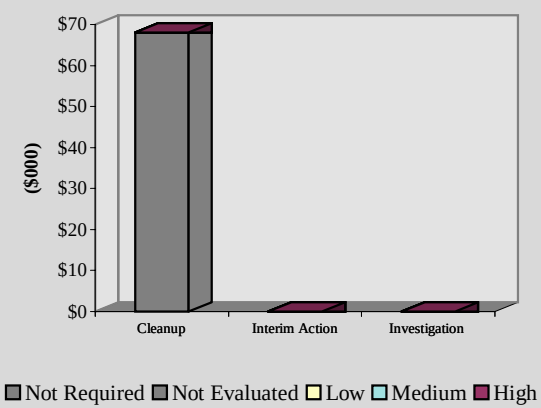
FY97 Restoration Progress

The installation continued to print an annual public notice in the local newspaper to promote interest in the formation of a restoration advisory board. Remedial operations and monitoring at the former spill area also continued, and an updated fact sheet was completed for all sites. In December 1996, the site was deleted from the NPL. A 5-year statutory review to complete site closure began in 1997 and will continue as long as EPA concludes that hazardous waste is present on-site.

Plan of Action

- Continue remedial operations and monitoring at the former spill area

FY98 Funding by Phase and Relative Risk



Size: 3,097 acres
Mission: Provided support for antisubmarine warfare training and patrol squadrons and served as Headquarters for Commander Patrol Wings of the Pacific Fleet
HRS Score: 32.90; placed on NPL in July 1987
IAG Status: Federal Facility Agreement signed in September 1990
Contaminants: PCBs, petroleum products, DDT, chlorinated cleaning solvents, and heavy metals
Media Affected: Groundwater and soil
Funding to Date: $62.1 million
Estimated Cost to Completion (Completion Year): $69.3 million (FY2010)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY2009

Sunnyvale, California

Restoration Background

In July 1991, the BRAC Commission recommended the closure of Moffett Field Naval Air Station. The installation was closed, as scheduled, on July 1, 1994, and transferred to the National Aeronautics and Space Administration (NASA).

Environmental studies since FY84 have identified 34 sites at the installation. Prominent site types include landfills, underground storage tanks (UST), a burn pit, ditches, holding ponds, french drains, maintenance areas, and fuel spill sites. Contaminants of concern include polychlorinated biphenyls (PCB), petroleum products, the pesticide DDT, chlorinated solvents, and heavy metals. These contaminants have been released into groundwater and soil. The installation was divided into seven operable units (OU). In FY90, initial site characterizations were completed for three UST sites, and 14 USTs were removed. Four leaking USTs were removed from another UST site in FY91.

The installation completed an Interim Remedial Action (IRA) to remove USTs from one site in FY90 and an IRA to conduct groundwater remediation at three other sites in FY91. Remedial Investigations (RI) also were completed for OUs 1, 2, and 5 in FY93 and for another site in FY94. Also in FY94, the installation completed a Removal Action that involved excavation and treatment of contaminated soil at one site. An IRA to remove contaminated soil was completed at another site.

During FY95, the installation completed a Site Inspection (SI) for one site. The installation also completed RIs for OU6 and three other sites and feasibility studies (FS) for OUs 1 and 5. In addition, a Record of Decision (ROD) for no further action (NFA) was signed for seven sites, and a Remedial Action (RA) for one site. The installation designed and constructed a bioventing treatment system for one site, designed and constructed a soil vapor extraction system for another site, and designed and constructed a recirculating in situ treatment (RIST) system for a third site.

An Environmental Baseline Survey, completed in FY94, designated 7 acres as CERFA-clean. The installation completed a Phase I Ecological Risk Assessment (ERA) in FY95. In FY96, the installation initiated FSs for two sites, and OU6; signed a ROD and initiated a Remedial Design (RD) for one site; initiated an RD for one site; initiated a ROD for NFA and removed all inactive USTs from one site; and initiated negotiations for NFA at four sites. An RD and a groundwater treatment using a permeable reaction cell were completed for one site. The installation also initiated a Phase II ERA during FY96 while completing a finding of suitability to transfer for the Naval Air Manor and preparing an Environmental Business Plan.

The installation completed a community relations plan in FY89 and established an information repository at a local library. It converted its technical review committee, formed in FY89, to a restoration advisory board (RAB) in FY95.

In FY94, the installation formed a BRAC cleanup team (BCT) and completed a BRAC Cleanup Plan (BCP). It updated the BCP in FY95. During FY96, the RAB met monthly and held two public meetings to discuss remedy alternatives for two OUs. Local television news stations toured the installation and interviewed installation staff.

FY97 Restoration Progress

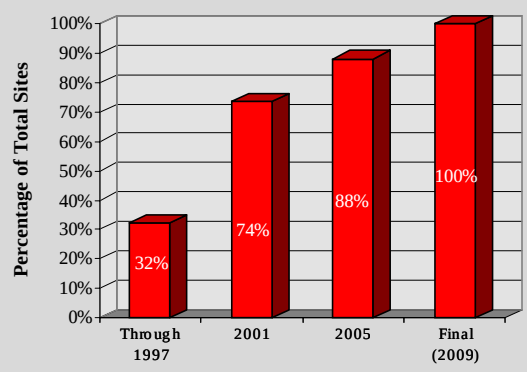
The ROD for OU1 was signed, and the RD and RA for one site were completed. OU6 was completed along with the Phase II ERA. The pilot test on the permeable reaction cell continued. The installation also conducted a three-dimensional seismic reflection survey to optimize groundwater extraction well locations and scope the location of sodium dithionite injection. A micropurge sampling technique was employed to reduce wastewater volume and shorten sampling time for quarterly sampling. The Site 2 RA was completed. A landfill cap was installed as a presumptive remedy. A design construction integration plan was employed at the installation along with quarterly long-term planning by BCT members to focus site actions.

Some activities scheduled for completion in FY97 were delayed because of a lack of funding and differences in ecological assessments.

Plan of Action

- Complete the RI/FSs for all sites in FY98
- Complete the FS and initiate RD for two sites in FY98
- Complete the RA and begin operations and maintenance efforts for one site in FY98
- Complete transfer of the Naval Air Manor by FY98
- Initiate the RA for three sites in FY98
- Complete the RA for OU6 in FY98
- Sign the basewide ROD in FY99
- Complete the RD for one site and OU6 in FY99

Sites Achieving RIP or RC Per Fiscal Year

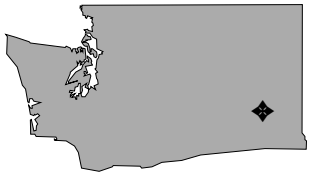


Moses Lake Wellfield Contamination Site

Formerly Larson Air Force Base

NPL

Size: 9,607 acres
Mission: Served as tactical air command, air transport, and strategic air command base; provided pilot training
HRS Score: 50.00; placed on NPL in October 1992
IAG Status: None
Contaminants: VOCs, jet fuel, possibly tetraethyl lead and low-level radioactive materials
Media Affected: Groundwater and soil
Funding to Date: $2.6 million
Estimated Cost to Completion (Completion Year): $0.2 million (FY1999)
Final Remedy In Place or Response Complete Date: FY1998



Moses Lake, Washington

Restoration Background

Larson Air Force Base served as a tactical air command base, then as a military air transport facility and a Strategic Air Command base. The installation was sold to the port of Moses Lake in 1966. It currently is operated by Grant County Airport, which is a regional aviation, industrial, and educational facility. The Moses Lake Wellfield is a city-owned water supply for residents of the former Larson Air Force Base housing area. The Wellfield property is located on the former base. This drinking water supply system is separate from other city drinking water systems. The city has performed Remedial Action activities at Wellfield, and concentrations of trichloroethene (TCE) have been reduced below the levels established in the Federal Drinking Water Standards. A privately owned water supply system for the Skyline community remains contaminated with TCE. The Skyline property adjoins the former base.

Beginning in FY87, environmental assessments identified four sites that required further investigation: 11 underground storage tanks (UST) and associated potentially contaminated soil; a TCE-contaminated groundwater plume; an area potentially containing low-level radioactive wastes; and two disposal areas potentially containing tetraethyl lead.

In FY88, TCE was detected in the Moses Lake Wellfield. A Phase I Remedial Investigation (RI) was initiated in FY91 by the U.S. Army Corps of Engineers (USACE), Seattle District, to identify potential source areas that would require further characterization. In FY93, the Phase I RI was completed. In FY94, three additional rounds of groundwater sampling were conducted under an addendum to the Phase I RI. The port of Moses Lake conducted an Interim Response Action, providing bottled water to the community. In FY92, 11 USTs were excavated and removed from the site.

In FY94, USACE Seattle District, under contract to EPA, completed an Engineering Evaluation and Cost Analysis (EE/CA) to evaluate the drinking-water system. The EE/CA was distributed for public comment, and a public meeting was conducted.

In FY95, USACE Omaha District completed a search for potentially responsible party (PRP) and a cost allocation effort. USACE Seattle District also completed the addendum to the Phase I RI, including additional groundwater sampling. Also in FY95, USACE Omaha District submitted a cost allocation proposal to EPA based on the PRP search.

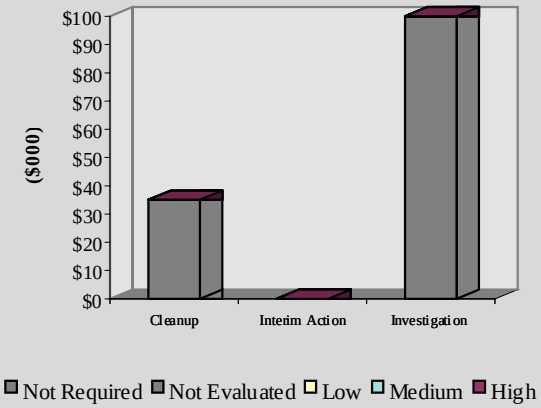
FY97 Restoration Progress

The Omaha District Office of Counsel, in coordination with its Department of Justice attorney, is in negotiation with EPA Region 10. These negotiations will lead to a determination of government liability and a decision on who (EPA, USACE, or PRPs) will take the lead in the coming investigation and Remedial Action.

Plan of Action

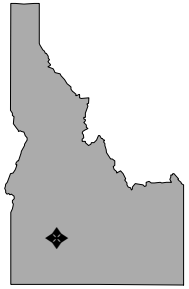
- Coordinate efforts with the Department of Justice to advocate DoD's responsibility and position at the site in FY98
- Continue partnership with EPA Region 10 and develop partnerships with the state of Washington Regulatory Agency in FY98

FY98 Funding by Phase and Relative Risk



Mountain Home Air Force Base NPL

Size: 6,000 acres
Mission: Provide composite combat air power worldwide
HRS Score: 57.80; placed on NPL in August 1990
IAG Status: Federal Facility Agreement signed in January 1992
Contaminants: VOCs, petroleum/oil/lubricants, and heavy metals
Media Affected: Groundwater and soil
Funding to Date: $8.1 million
Estimated Cost to Completion (Completion Year): $0.1 million (FY1996)
Final Remedy in Place or Response Complete Date: FY1996



Mountain Home, Idaho

Restoration Background

Environmental studies conducted since FY83 have identified 32 sites at Mountain Home Air Force Base. Sites include landfills, fire training areas, a fuel hydrant system spill area, disposal pits, surface runoff areas, wash racks, ditches, underground storage tanks (UST), petroleum/oil/lubricant (POL) lines, and a low-level-radioactive-material disposal site. Releases from POL lines and spill sites have contaminated groundwater and soil with petroleum hydrocarbons, heavy metals, and volatile organic compounds (VOC), including trichloroethene (TCE). To improve and accelerate site characterization, the installation grouped the sites into operable units (OU).

From FY91 to FY92, Removal Actions included clean closure and removal of 12 USTs. In FY93, the installation recommended no further action for 15 of 21 sites at OU1. The remaining six sites at OU1 and one new site were combined to form OU6. As a result, restoration activities at OU1 are now complete. In FY92, Remedial Investigation (RI) activities were initiated for OU3 and OU6. A no further action Record of Decision (ROD) was signed for OU4, and an Interim Remedial Action (IRA) was conducted at OU5 (low-level-radioactive-material site). The IRA consisted of excavating 2 cubic yards of contaminated soil, a pipe, and six 55-gallon drums. Because analysis of soil samples and removed items did not reveal radioactive contamination, the excavated soil, pipe, and drums were disposed of as low-level radioactive waste.

In early FY93, a no-further-action ROD was signed for OU2. However, in mid-FY93, the state regulatory agency orally requested that 3 acres of one landfill at OU2 be capped. In late FY93, the installation complied with that request.

During FY95, the installation completed RI activities for OUs 1, 3, 5, 6; the lagoon landfill; and Fire Training Area 8. A draft RI and a final RI Report were submitted to EPA and the state regulatory agency, and the installation began groundwater modeling, using the results of analysis of groundwater samples to determine the extent of migration of the contaminant plume.

The installation converted its technical review committee to a restoration advisory board (RAB) in FY94. The installation holds quarterly RAB meetings and in FY96, advertised the meetings in the local newspaper to increase public involvement.

In FY96, a ROD was signed for OUs 1, 3, 5, 6; the lagoon landfill; and Fire Training Area 8. Only OU3 requires further action. The regional groundwater was monitored to resolve uncertainties in the ground-water transport model. The perched water at Site ST-11, the flightline fuel spill site, was monitored. The installation submitted a request to EPA to delete the installation from the National Priorities List (NPL) in FY96. EPA indicated that it prefers to wait until a required 5 year review has taken place at site ST-11 before it begins the delisting process. The installation will continue to urge delisting of the installation from the NPL.

FY97 Restoration Progress

The installation continued to monitor regional groundwater for the groundwater transport model. The perched water at Site ST-11 also continued to be monitored. Deletion of the installation from the NPL continued to be pursued. These activities are expected to continue until September 2000.

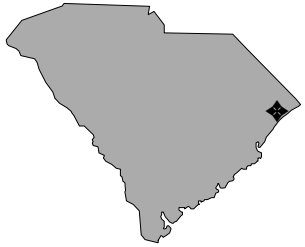
Plan of Action

- Continue to monitor regional groundwater in FY98
- Continue to monitor the perched water at Site ST-11 in FY98
- In FY98, plan and initiate a Treatability Study to enhance the natural attenuation at Site ST-11
- Continue to pursue deletion of the installation from the NPL in FY98

FY98 Funding by Phase and Relative Risk

All sites are in the long-term monitoring phase.

Size: 3,937 acres
Mission: Housed tactical fighter wing
HRS Score: NA
IAG Status: None
Contaminants: Spent solvents, fuel, waste oil, VOCs, metals, asbestos, paints, and thinners
Media Affected: Groundwater and soil
Funding to Date: $33.8 million
Estimated Cost to Completion (Completion Year): $15.5 million (FY2007)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1999



Myrtle Beach, South Carolina

Restoration Background

In July 1991, the BRAC Commission recommended closure of Myrtle Beach Air Force Base. On March 31, 1993, the installation closed.

Sites identified during previous investigations include landfills, weathering pits, fire training areas, drainage ditches, hazardous-waste storage areas, maintenance areas, underground storage tanks (UST), explosive ordnance areas, fuel storage areas, a small arms firing range, and a lead-contaminated skeet range. Contaminants include petroleum hydrocarbons, heavy metals, and volatile organic compounds (VOC), which affect groundwater and soil. The installation has conducted Preliminary Assessments, Site Inspections, Remedial Investigations (RI), and Feasibility Studies (FS) for the identified sites. In FY94, cleanup was completed at the skeet range.

Interim measures taken include removal of contaminated soil at the weathering pit, removal of 28 USTs, removal of 20 oil-water separators, and evaluation of the integrity of 18 other oil-water separators.

In FY95, the installation began conducting a pilot program to determine the applicability of bioremediation at a site contaminated with petroleum/oil/lubricants (POL).

Interim corrective measures (ICM) were initiated to treat a 50-acre trichloroethene (TCE)-contaminated groundwater plume. The installation also began Remedial Design and Treatability Studies for the small-arms firing range and firing-in-buttress sites. RCRA Facility Investigations have been implemented for the drainage ditches, the Old Entomology Shop, the Armament Shop, and the Old Engine Test Cell. Corrective-measure studies are planned for the Old Entomology Shop and the Armament Shop.

A joint management team formed in FY91 assumed the role of a BRAC cleanup team (BCT) in FY93. In FY94, the installation prepared a BRAC Cleanup Plan (BCP) that outlined current and future restoration strategies and efforts for all environmental programs at the installation.

The restoration advisory board (RAB), which was formed in FY94, has conducted field trips and reviewed funding, relative risk, and site-cleanup information. The BCT has fostered formal partnerships with EPA and the state regulatory agency and has used facilitators and workshops to improve the communication and decision-making processes at meetings.

Early in FY96, the installation presented the Relative Risk Site Evaluation process at a RAB meeting. The installation also updated both the BCP and relative risk information. By the end of FY96, 48 percent of the base had been transferred by deed.

FY97 Restoration Progress

The installation completed the RI/FS reports and selected cleanup technologies for several sites. It also determined the extent of lead contamination in soil at the small arms firing range. In addition, the installation submitted clean-closure plans to the state regulatory agency for two hazardous-waste management units, corrective action plans (CAP) for the hazardous waste tank facility, and draft CAPs after investigating the UST sites. The installation completed the CAP for the Old Entomology Shop and expanded the CAP for the 50-acre TCE plume.

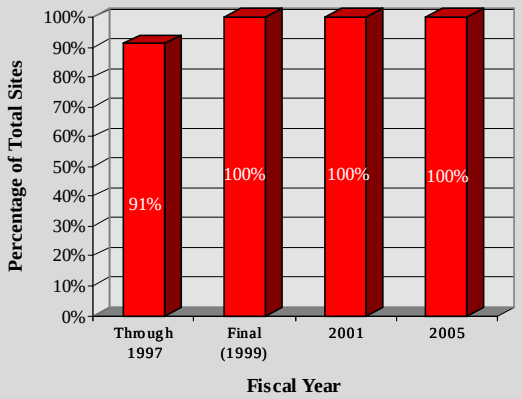
Eight early Removal Actions took place at the installation. The base also used innovative management techniques and has completed a Relative Risk Site Evaluation at all sites.

Some activities scheduled for completion in FY97 were delayed because of funding problems.

Plan of Action

- Complete ICM for soil at the Old Entomology Shop, the small-arms firing range, and waste-tank sites in FY98
- Collect additional information to fill data gaps in RI/FS reports and implement long-term monitoring at 12 sites in FY98
- Continue the pilot program for bioremediation and field investigation for complementary corrective action at two fuel-contamination sites in FY98
- Complete all Remedial Action construction by FY99
- Implement ICM for groundwater at the Armament Shop, a fire training area, an off-base area (Old Entomology Shop), and four UST sites in FY99
- Implement ICM for four landfill covers in FY98

Sites Achieving RIP or RC Per Fiscal Year



National Presto Industries

Formerly Eau Claire Ordnance Plant No. 1

NPL

Size: 320 acres
Mission: Manufacture ordnance
HRS Score: 43.7; placed on NPL in June 1986
IAG Status: None
Contaminants: VOCs, including TCE
Media Affected: Groundwater and soil
Funding to Date: $3.2 million
Estimated Cost to Completion (Completion Year): $0.01 million (NA)
Final Remedy In Place or Response Complete Date: NA

Eau Claire, Wisconsin

Restoration Background

Between 1981 and 1985, EPA and the Wisconsin Department of Natural Resources (WDNR) conducted groundwater studies in the general area west of the National Presto Industries (NPI) site (formerly Eau Claire Ordnance Plant No. 1). Volatile organic compounds (VOC) were detected in groundwater samples. EPA issued an Administrative Order on Consent requiring NPI to design and install an on-site groundwater treatment facility.

In FY91, EPA issued a unilateral order requiring NPI to construct a drinking water system in an area of the town of Hallie. The drinking water system was completed in FY92.

In FY92, the U.S. Army Corps of Engineers, Omaha District, awarded a contract for potentially responsible party (PRP) investigation activities, including research into historical activities at the site and an evaluation of technical data relating to potential DoD liability. Results of this investigation indicate that DoD has limited, if any, liability.

In FY94, under a Consent Order signed by NPI and EPA, removal activities began at Lagoon No. 1. Final closure of the lagoon is awaiting completion of source removal and issuance of the Record of Decision (ROD). The Remedial Investigation (RI) report identified five source areas and four plumes of groundwater contamination. The on-site groundwater extraction and treatment facility also became operational in FY94.

In FY95, NPI continued operating the on-site groundwater extraction and treatment system. A Removal Action was conducted at Lagoon No. 1 to remove waste forge compound liquids and solids. In addition, the Remedial Investigation and Feasibility Study (RI/FS) was completed, and a Proposed Plan was issued. A public meeting was held to outline the alternatives included in the RI/FS. WDNR issued a statement on the environmental restoration levels desired; WDNR did not concur with EPA's proposed plan.

In FY96, NPI continued to operate the groundwater extraction and treatment system. Congress appropriated an additional $15 million for NPI's CERCLA cleanup. In June 1996, the Army transferred that funding to NPI at the direction of Congress. In May, a ROD was issued with state concurrence. On September 20, WDNR issued a unilateral order to NPI.

FY97 Restoration Progress

An intermediate design for the Melby Road disposal site was submitted along with an Engineering Evaluation and Cost Analysis and a Remedial Action Plan for Lagoon No. 1. In addition, a revised Remedial Design work plan was completed and presented. Work plans also were submitted for the soil vapor extraction monitoring wells and ditch and dry well soil sampling.

NPI continued to operate several operable units (OU) on-site. NPI will continue to extract and treat groundwater for an unknown period.

Plan of Action

- Continue to operate several OUs on-site in FY98

FY98 Funding by Phase and Relative Risk

All sites are in the long-term monitoring phase.

Nebraska Ordnance Plant (Former) NPL

Size: 17,214 acres
Mission: Performed ordnance storage and manufacturing activities
HRS Score: 31.94; placed on NPL in August 1990
IAG Status: IAG signed in September 1991
Contaminants: Explosives, VOCs, and PCBs
Media Affected: Groundwater and soil
Funding to Date: $47.3 million
Estimated Cost to Completion (Completion Year): $121.3 million (FY2031)
Final Remedy In Place or Response Complete Date: FY2002

Mead, Nebraska

Restoration Background

From 1942 to 1956, the Nebraska Ordnance Plant produced munitions at four bomb-loading lines, stored munitions, and produced ammonium nitrate. Currently, most of the property is owned by the University of Nebraska and is used as an agricultural research station. Other portions of the property are owned by the Nebraska National Guard and private entities.

Activities on the former DoD property include munitions production areas, bomb-loading lines, a bomb booster assembly area, burn areas, a sewage treatment plant, an ammonium nitrate plant, and an Atlas Missile facility. The U.S. Army Corps of Engineers (USACE) has identified soil contaminated with polychlorinated biphenyls (PCB) and munitions, as well as on-site and off-site groundwater contaminated with explosives and volatile organic compounds (VOC). Groundwater in the area is used for drinking water, irrigation, and watering of livestock.

In FY94, USACE completed a Remedial Investigation and Feasibility Study (RI/FS) for soil contamination and prepared a draft final RI/FS Report for groundwater. In addition, a Time-Critical Removal Action for PCBs was completed, and investigations were planned for sites with ordnance, explosives waste, and other types of contamination.

In FY95, a Record of Decision (ROD) concerning incineration of contaminated soil at Operable Unit (OU) 1 was approved and Remedial Design (RD) began. USACE completed both the Proposed Plan and the FS report for groundwater contamination at OU2 and the Phase I RI fieldwork at OU3. In addition, EPA approved the final Engineering Evaluation and Cost Analysis (EE/CA) and the design for the Removal Actions for two trichloroethene (TCE)-contaminated groundwater plumes. USACE installed activated carbon canister treatment systems to treat contaminated drinking water in on-site wells and completed field investigations to identify explosives waste. A draft EE/CA of the investigation was submitted.

In FY96, USACE completed the RD for the OU1 incinerator. The draft final ROD for contaminated groundwater at OU2 was completed and submitted to the appropriate regulatory agencies for review. In addition, USACE awarded the RD contract and completed the decision documents for the Removal Action at OU2. The Phase II RI field investigation for OU3 also was completed, and USACE completed the PCB Removal Action and the Ordnance and Explosives EE/CA and Action Memorandum.

FY97 Restoration Progress

USACE converted the technical review committee to a restoration advisory board (RAB). The RAB provided timely information to the public on controversial incinerator issues and held several public meetings to disseminate information. Full public acceptance was achieved by the end of the trial burn testing. In addition, meetings with the Lower Platte Natural Resource District on the potential beneficial reuse of treated groundwater continued.

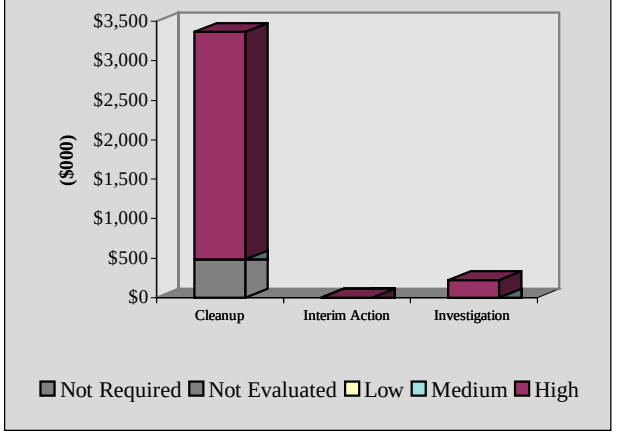
The contract for Remedial Action (RA) at OU1 was awarded, and construction was completed. The draft final RI and draft final Baseline Risk Assessment for OU3 also were completed. The design for building demolition and debris removal at the Load Line Buildings was completed, and the demolition contract awarded. Also, the contract for the Removal Action at OU2 was awarded. An ordnance and explosives Removal Action was accomplished. USACE provided point-of-use water treatment to residences whose water was affected by the groundwater plume and awarded the contract for the groundwater containment Removal Action.

Regulators and USACE jointly developed data formats to expedite review of incinerator emission data. In addition, partnering sessions, which included regulators, were conducted before construction of the incinerator to resolve any remaining issues. Monthly project manager meetings enhanced coordination among agencies.

Plan of Action

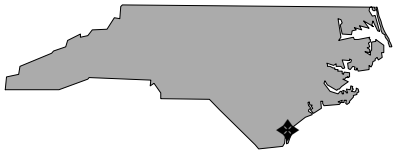
- Begin asbestos removal at the Load Line Buildings in FY98
- Begin structural demolition of the Load Line Buildings in FY98 and complete demolition in FY99
- Begin the groundwater containment Removal Action in FY98
- In FY98, develop a formal Memorandum of Understanding with the Lower Platte Natural Resources District to provide a framework for coordination on groundwater cleanup issues
- Evaluate use of advanced oxidation and plasma arc technologies for inclusion in RD of groundwater treatment process in FY98
- Evaluate beneficial reuse of the extracted groundwater in FY98

FY98 Funding by Phase and Relative Risk



New Hanover County Airport NPL

Size: 4 acres
Mission: Served as World War II bomber command and Vietnam-era aerospace defense command
HRS Score: 39.39; placed on NPL in March 1989
IAG Status: None
Contaminants: VOCs and SVOCs
Media Affected: Groundwater
Funding to Date: $1.7 million
Estimated Cost to Completion (Completion Year): $1.2 million (FY2010)
Final Remedy In Place or Response Complete Date: FY2010



Wilmington, North Carolina

Restoration Background

In FY87, a Preliminary Assessment and a Site Inspection identified groundwater contamination caused by fire training activities conducted at New Hanover County Airport from FY68 through FY79. Fire training activities involved burning jet fuel, gasoline, fuel oil, and kerosene. The site included a burn pit, a mockup of an aircraft, and a 10,000-gallon aboveground storage tank that supplied fuel to the burn areas. The site also contained several other fire training stations, including a fire smokehouse, a railroad tanker car, and several automobiles. As a result of fire training activities, groundwater has been contaminated with benzene.

EPA has identified DoD, New Hanover County, Cape Fear Community College, and the city of Wilmington as potentially responsible parties (PRP) for the site.

A Removal Action completed in FY91 involved the removal of waste materials, contaminated water, contaminated surface and subsurface soil, and structures associated with the fire training activities. Soil samples also were collected to confirm that no contaminated soil remained on site. As a result of the confirmatory sampling, the recommendation was that no further action be taken at the site.

In FY92, EPA completed the Remedial Investigation and Feasibility Study for groundwater contamination, and the Record of Decision (ROD) for cleanup was signed. In FY94, PRPs began Remedial Design (RD) work at the airport to collect additional data on groundwater quality. In FY95, two monitoring wells were installed to confirm that contamination had not migrated to the lower groundwater aquifer. A 60 percent RD document was sent to EPA with a recommendation that air sparging be used as a more cost-effective treatment technology.

In FY96, the PRPs continued their efforts to obtain EPA's approval of the pilot test of the air sparging technology. The U.S. Army Corps of Engineers continued to obtain funding for DoD's share of design costs.

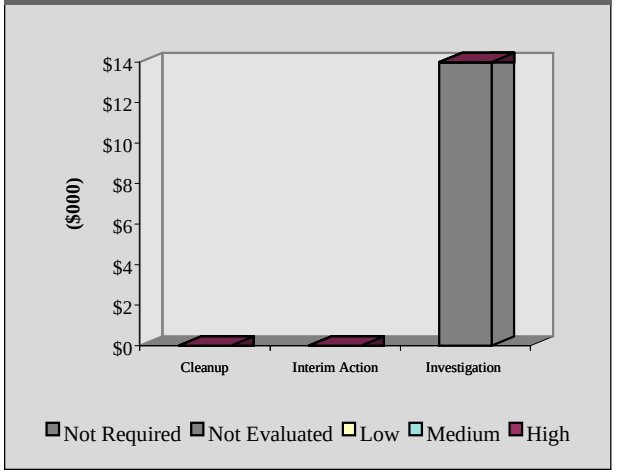
FY97 Restoration Progress

The PRPs used a low-volume/low-flow sampling technique to reevaluate metal contamination in the groundwater. The reevaluation showed that metals were no longer a contaminant of concern. This finding was instrumental in obtaining approval from EPA and state of North Carolina for implementation of the air sparging pilot study. The PRPs proactively resubmitted pilot test proposal with updated timelines, which also contributed to EPA's timely concurrence.

Plan of Action

- Implement a pilot test of the air sparging technology in FY98
- Evaluate the efficacy of the air sparging technology and revise RD in FY98
- Begin full-scale utilization of the air sparging technology in FY99
- Amend and implement ROD in FY99 and complete ROD in FY04

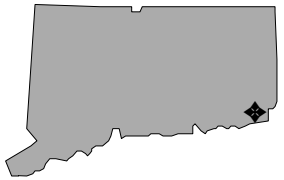
FY98 Funding by Phase and Relative Risk



New London Naval Submarine Base

NPL

Size: 547 acres
Mission: Maintain and repair submarines; conduct submarine training and submarine medical research; provide a home port for submarines
HRS Score: 36.53; placed on NPL in August 1990
IAG Status: Federal Facility Agreement signed in January 1995
Contaminants: Dredge spoils, incinerator ash, petroleum/oil/lubricants, PCBs, spent acids, pesticides, solvents, construction debris, metals, and VOCs
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $33.6 million
Estimated Cost to Completion (Completion Year): $59.7 million (FY2016)
Final Remedy in Place and Response Complete Date: FY2011



Groton, Connecticut

Restoration Background

Environmental studies began at the New London Naval Submarine Base in FY82. Significant sites include the Area A Landfill, a number of smaller disposal areas, and fuel and chemical storage areas. Twenty-two CERCLA sites have been identified along with underground storage tanks (UST), which have been grouped into two UST sites.

The installation was placed on the National Priorities List (NPL) because of polychlorinated biphenyl (PCB) contamination at the Area A Landfill. The landfill was used to dispose of scrap wood, metal, waste chemicals, waste acid, and drums containing solvents. In FY93, the Navy constructed a fence around the landfill and limited potential direct-contact exposures as part of an Interim Remedial Action (IRA). The installation also completed work on an IRA to install a cap on the landfill.

Several Removal Actions have been implemented at the installation. In FY91, 19 gas cylinders were removed from Site 8, the Goss Cove Landfill. In FY94, the installation removed from Site 6 2,000 cubic yards of soil contaminated with PCBs and lead. At Site 15, lead-contaminated soil was removed. At Site 9, the installation removed PCB-contaminated oil, sludge, and water from a waste oil tank. The tank was cleaned and abandoned in place.

The installation also conducted a Removal Action at Site 17 to remove lead-contaminated soil. Innovative technology was used to solidify and stabilize this soil. At UST Sites 1 and 2, the base began installing air sparging (AS) and soil vapor extraction (SVE) systems to remove gasoline from the subsurface and to bioremediate less volatile fuels.

In FY95, a Record of Decision (ROD) was signed for Site 2, the Area A Landfill. Under the ROD, the installation agreed to cap the landfill as an IRA. In addition, the draft Remedial Investigation and Feasibility Study (RI/FS) Report was completed for Sites 1 through 11, 13 through 15, and 20.

The installation formed a technical review committee (TRC) in FY89 to accelerate the decision-making process. In FY94, the installation converted the TRC to a restoration advisory board (RAB). The RAB first met formally in FY95 and now meets quarterly.

In FY96, the installation began the FSs for Sites 3 and 8 and received funding for the Remedial Action at Site 3. The installation also completed installing and began operating the AS/SVE systems at UST Sites 1 and 2 and initiated a Phase II Site Inspection (SI) at the Fuel Farm (Site 23).

FY97 Restoration Progress

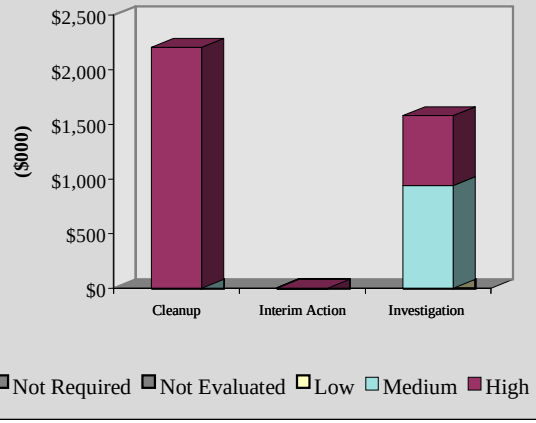
The RI for Sites 1 through 11, 13 through 15, and 20 was completed in March. In September, a landfill cap was constructed at Site 2 and the corrective action design and Phase II SI at Site 23 were completed. The Area A Landfill was capped in January 1997.

Removal Actions were completed at Site 4 and the Bank Disposal Area of Site 3. A geoprobe was employed to help accelerate field investigation activities.

Plan of Action

- Begin Remedial Action at Site 3 in FY99
- Begin FS for Site 7 in FY98
- Complete a Remedial Design for Site 8 (Goss Cove Landfill) and Site 3 (Area A Downstream) in FY98
- Begin FS for Sites 10, 11, 13, 21, and 22 in FY98
- Begin RI for basewide groundwater operable unit in FY98

FY98 Funding by Phase and Relative Risk



Size: 70 acres
Mission: Repair inertial navigation systems and manage Air Force metrology and calibration process
HRS Score: NA
IAG Status: None
Contaminants: VOCs and SVOCs
Media Affected: Groundwater and soil
Funding to Date: $2.1 million
Estimated Cost to Completion (Completion Year): $849.0 million (FY1996)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1996

Heath, Ohio

Restoration Background

Since 1962, Newark Air Force Base has repaired the inertial guidance and navigational systems used by most aircraft and missiles. The installation also provided specialized engineering assistance to the Air Force and DoD on problems related to inertial guidance and navigation. In July 1993, the BRAC Commission recommended that the installation be closed.

The repair of inertial guidance systems requires the use of solvents such as freon 113 and 1,1,1-trichloroethane. Past waste management activities related to those solvents affected groundwater and soil at the installation. Environmental investigations conducted at the installation since FY84 identified five sites that required additional study. In FY89, Site Inspection (SI) activities were completed for another seven sites, consisting of spill sites, a fire training area, and landfill areas.

In FY90, the installation began a Remedial Investigation and Feasibility Study for the seven sites identified in the SI. In FY91, no further action decision documents were prepared for five of the seven sites. In FY94, the installation formed a BRAC cleanup team and completed an Environmental Baseline Survey.

In FY95, work began on a Supplemental RI, which concluded in August 1996 with the publication of a final report. This report concluded that no further action was needed for the six sites studied. Remedial activities have included the removal of 17 underground storage tanks, removal of 300 cubic yards of soil from the former hazardous waste storage site (Facility 87), and operation of a soil vapor extraction system at Facility 87.

In FY95, the installation formed a restoration advisory board. Bimonthly meetings focused on promoting accelerated remediation and property transfer.

FY97 Restoration Progress

By mid-summer 1997, all unnecessary monitoring wells were closed. In September, a contract was awarded to extend the city water system onto the base and to close three drinking water wells. The contract's projected completion date is February 1998.

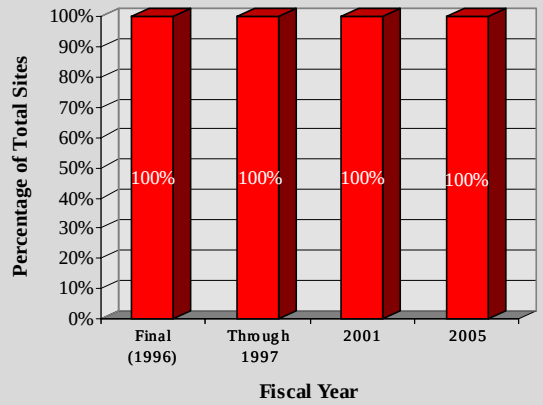
The installation is awaiting a decision by the Ohio EPA to conclude long-term monitoring and quarterly sampling of groundwater at Facility 87.

Some activities scheduled for completion in FY97 were delayed because supplemental investigations were necessary.

Plan of Action

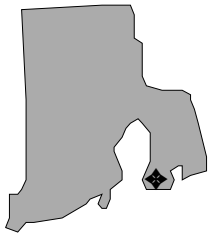
- Decontaminate Facilities 102 and 114 (hazardous waste storage buildings) by mid-FY98
- Obtain clean closure of Facility 87 by mid-FY98
- Complete all environmental actions by FY98
- Transfer ¾-acre Facility 87 parcel, with deed restrictions, to reuse authority by FY99
- By FY99, transfer 13 acres to the Airport Authority by deed with restrictions

Sites Achieving RIP or RC Per Fiscal Year



Newport Naval Education and Training Center NPL

Size: 1,400 acres
Mission: Provide logistical support and serve as a training center
HRS Score: 32.25; placed on NPL in November 1989
IAG Status: Federal Facility Agreement signed in March 1992
Contaminants: PCBs, petroleum/oil/lubricants, VOCs, and SVOCs
Media Affected: Groundwater, surface water, sediment, and soil
Funding to Date: $46.0 million
Estimated Cost to Completion (Completion Year): $28.7 million (FY2016)
Final Remedy in Place or Response Complete Date: FY2007



Newport, Rhode Island

Restoration Background

The Newport Naval Education and Training Center was used as a refueling depot from the early 1900s until after World War II, when the installation was restructured to support research and development activities and provide specialized training. Major contaminants at the installation include petroleum/oil/lubricant sludge associated with a number of tank farm sites, waste acids, solvents, and polychlorinated biphenyls (PCB) in landfills used to dispose of general refuse and shop wastes.

Phase I Remedial Investigation and Feasibility Study (RI/FS) activities were completed in FY91. The Phase II RI for the McAllister Point Landfill site was completed in FY93, and the Navy obtained a Record of Decision (ROD) to cap the 11-acre landfill. The Remedial Design for the cap and the Phase II RI for the Old Fire Fighting Training Area site were completed in FY94.

In FY92, an Interim ROD was signed for extraction and treatment of groundwater at Tank Farm No. 5 to prevent the migration of contaminants. The groundwater extraction and treatment system began operating in FY94, and activities continued into FY95. The installation also completed RIs for two underground storage tanks (UST) and began to remove the contents of the tank and petroleum-contaminated soil at another UST located on Tank Farm No. 5. The installation completed a Treatability Study involving cement fixation and stabilization of lead-contaminated solids excavated from the Melville North Landfill. It initiated another innovative technology, white rot fungus, for the destruction of petroleum contamination in soil.

Seven sites at the installation, including one UST site, have been assigned high rankings under DoD's Relative Risk Ranking System.

The installation formed a technical review committee in FY88 and converted it to a restoration advisory board (RAB) in FY95. A community relations plan was completed in FY90. Information repositories were established in FY90, and an administrative record was established in FY92. The installation also established an ecological advisory board.

In FY96, the installation's RAB met for the first time and its ecological advisory board met several times. The Ecological Risk Assessments for Sites 1 and 19 were under way. RI was initiated for Sites 2, 9, and 13. Some petroleum-contaminated hot spots in soil were removed; however, the volume of contaminated soil was larger than had been anticipated.

FY97 Restoration Progress

An FS for Site 2 was completed in September 1997. A RCRA cap was installed at Site 1, and action begun to remove contaminated soil at Site 19. After completion of the Study Area Screening Evaluation at Site 19, an onshore Removal Action was initiated to improve site management techniques.

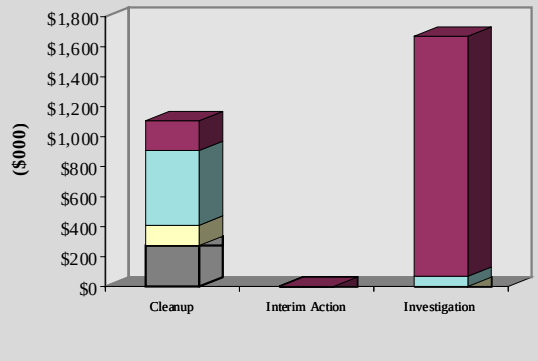
To expedite document review, the installation presented draft documents to the RAB and regulators at ecological advisory board meetings. Monthly project manager meetings were also held with regulatory agencies. An RI was completed at Site 2 (a non-NPL [National Priorities List] site) through working meetings with the state. At the working meetings, work plans and reports were presented and comments were resolved, eliminating the need for formal review. RAB meetings were held monthly to address restoration progress.

The installation began a Removal Action on contaminated soil at Site 19, instead of starting the FS for Site 12.

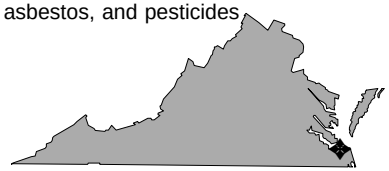
Plan of Action

- Complete FS for Sites 12 and 13 in FY98
- Begin a Removal Action in FY98 at the Melville North Landfill
- Involve community in preparing Federal Facility Agreement schedules for site cleanup in FY98
- Plan partnering session with EPA and the Rhode Island Department of Environmental Management in FY98
- Complete an onshore Removal Action at Site 19 in FY99
- Continue RI for Sites 9 and 17

FY98 Funding by Phase and Relative Risk



Size: 4,631 acres
Mission: Provide services and materials to support the aviation activities and operating forces of the Navy
HRS Score: 50.00; proposed for the NPL in June 1996
IAG Status: Federal Facility Agreement under negotiation
Contaminants: Petroleum products, PCBs, solvents, heavy metals, acids, paints, asbestos, and pesticides
Media Affected: Surface water and sediment
Funding to Date: $67.0 million
Estimated Cost to Completion (Completion Year): $34.8 million (FY2021)
Final Remedy in Place or Response Complete Date: FY2013



Norfolk, Virginia

Restoration Background

Environmental studies conducted at Norfolk Naval Base (also known as Sewells Point Naval Complex) since FY83 have identified 22 sites and 173 solid waste management units (SWMU). Further actions are required at 10 sites, 6 site screening areas, and 10 areas of concern. Contamination has resulted from maintenance operations for the aircraft, equipment, and vehicles used to carry out the base's mission, as well as from operation of support facilities, such as hobby shops. Site types at the installation include landfills, ordnance storage areas, waste disposal areas, fire training areas, fuel spill areas, and underground storage tanks. The installation was proposed for the National Priorities List (NPL) mainly because of the potential for contaminated surface water to migrate into groundwater and soil.

During FY89, the installation completed a Remedial Investigation and Feasibility Study (RI/FS) for Site 4. In FY91, an Expanded Site Inspection was completed for Site 6 and a Remedial Design (RD) was completed for Site 4. During FY94, the installation removed drums and debris at Area B of Site 1 and completed an RI/FS and signed a decision document for Site 1.

The installation formed a technical review committee in FY89 and converted it to a restoration advisory board (RAB) in FY94. The RAB's eight community members meet quarterly. A community relations plan was completed in FY93. In FY92, the installation established several information repositories. An administrative record was established in FY93.

During FY96, the installation briefed regulatory agencies and the RAB about two sites, and the installation began placing the administrative record file on CD-ROM to improve accessibility. A Preliminary Assessment (PA) and Site Inspection (SI) was initiated for Site 21, and an RI/FS was initiated for three sites. Construction for a treatment facility continued. A baseline Ecological Risk Assessment was completed for Site 3, and construction of an air sparging and vapor extraction system was initiated for the site.

FY97 Restoration Progress

The installation completed a draft Federal Facility Agreement (FFA) and signed two decision documents before NPL listing. In addition, an RD was completed and a Remedial Action (RA) was initiated for Sites 6 and 20. An RA was initiated for SWMU 1. The RA for Site 1 and the pump-and-treat system for the LP Fuel Farms were completed.

The use of geoprobe, ground-penetrating radar, on-site laboratories, Hydropunch, and Global Positioning System survey technologies accelerated fieldwork at various sites.

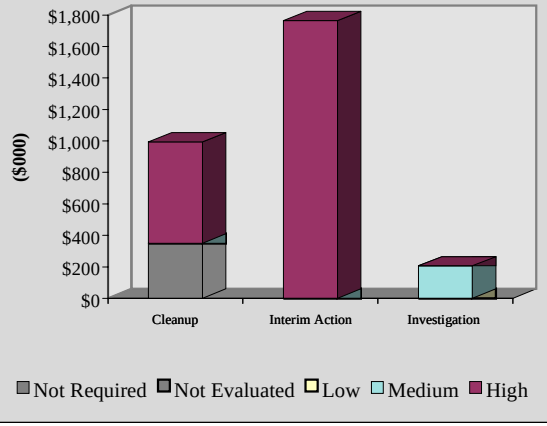
Partnering efforts initiated in early FY97 have resulted in significant savings. Activities include presentation and discussion of documents during partnering meetings to familiarize reviewers with the material quickly and conference calls to improve communication and resolution of issues. In addition, consensus agreements were used to reach agreement on issues, and subgroups were formed with technical support from each agency to address human and ecological risk issues. Joint scoping also was used to make field investigations more efficient.

Some activities scheduled for completion in FY97 were delayed. The RA at Site 21 was initiated using RSCA rules, so no PA/SI was required. Design changes and further delineation of the plume pushed back completion of the RA. The RA at SWMU 1 was initiated, but the other RAs have not begun. The draft FFA was completed and is under review.

Plan of Action

- Complete RA and begin long-term monitoring (LTM) and operation and maintenance (O&M) for Site 3 in FY98
- Sign the FFA in FY98
- Complete the RI/FS for Site 5 in FY98
- Complete the RI/FS and initiate RD for Site 2 in FY98
- Complete the RI/FS and RD for Site 22 in FY98
- Complete the RA for Site 6 in FY98
- Complete the RA and initiate LTM and O&M for Site 20 in FY98
- Initiate LTM and O&M for Site 1 in FY98
- Initiate Removal Actions for SWMUs 4 and 6 in FY99

FY98 Funding by Phase and Relative Risk



Size: 2,165 acres
Mission: Support C-141 airlift operations
HRS Score: 39.65; placed on NPL in July 1987
IAG Status: IAG signed in 1989
Contaminants: Waste oils and fuel, spent solvents, paints, refrigerants, heavy metals, and VOCs
Media Affected: Groundwater and soil
Funding to Date: $96.2 million
Estimated Cost to Completion (Completion Year): $14.0 million (FY2012)
Final Remedy in Place or Response Complete Date for BRAC Sites: FY1999

San Bernardino, California

Restoration Background

In December 1988, the BRAC Commission recommended closure of Norton Air Force Base. The installation closed in March 1994.

The most significant sources of contamination at this installation are a trichloroethene (TCE) groundwater plume and contaminated soil areas. Sites identified through previous environmental studies include underground storage tanks (UST), landfills, fire training areas, spill areas, and waste disposal pits.

In FY82, Remedial Investigation and Feasibility Study activities began for 22 sites. The installation also has initiated two Treatability Studies in conjunction with the removal of polychlorinated biphenyl (PCB)-contaminated soil. Since FY93, a groundwater extraction and treatment system has been used to treat groundwater at the TCE plume area.

In FY94, the installation removed 45 USTs. Three of the 45 UST sites required further action. The installation also conducted confirmation studies at 43 areas of concern (AOC) and at 3 of the original 22 sites. The studies indicated that 19 AOCs require further investigation. In addition, the installation signed a water supply contingency policy to protect users of groundwater downgradient of the TCE plume.

In FY95, the Central Base Area Operable Unit (OU) groundwater extraction and treatment system was expanded and the Base Boundary groundwater extraction and treatment system became operational. The installation formed a restoration advisory board (RAB) and a BRAC cleanup team (BCT). The BCT redefined OUs as zones and initiated Interim Actions to shorten the cleanup time by approximately 1 year. The BCT also developed target soil-cleanup goals that apply the state regulatory agency's preliminary remediation goals to the characteristics at the installation. The effort produced predetermined cleanup standards that have been agreed upon by both the Air Force and the regulatory agencies. Removal Actions can now proceed without the need to identify separate cleanup standards for each project.

During FY96, restoration activities were completed at 10 of the 22 sites. No-further-remedial-action-planned documents were completed for Sites 3, 4, 7, 11, 15, and 18. Closure reports were completed for Sites 6 and 9. An Action Memorandum concluded that no further action is necessary at Site 22. Of the remaining 12 sites, 11 are undergoing Engineering Evaluations and Cost Analyses (EE/CA), Remedial Design (RD), or Remedial Action (RA). Site 19 has been recommended for an interim Record of Decision (ROD).

The Air Force has identified 73 AOCs that require some form of survey or investigation. Fifty-four AOCs require no further action; the remaining 19 AOCs are still under investigation. Installation of the Base Boundary groundwater extraction and treatment system was completed. Soil removal was completed at 23 UST sites, and the removed soil was treated in bioremediation cells. The Air Force, EPA, and California EPA agreed that the Central Base Area Operable Unit remediation technology was operating properly and successfully.

Closure of the Defense Reutilization and Marketing Office (DRMO) was completed in April 1996. Fieldwork for the Industrial Waste Treatment Plant closure was completed, and a closure report was submitted. Closure of the Air Combat Camera Services began, and the closure plan for the Industrial Waste Line project was reviewed by the state.

FY97 Restoration Progress

Continuaton of BCT meetings conducted by the Air Force, EPA, and California EPA allowed fast document processing. The BCT reviewed numerous EE/CAs, Action Memorandums, RDs, and closure reports. The ROD for Site 19 was signed. The RD for the landfill cap at Site 2 was completed. The installation also completed the Air Combat Camera Services Closure Report.

The RA was completed at Sites 1, 8, 13, and 14 through excavation and disposal. The installation also completed RAs for Sites 16 and 21.

The RA for Site 5 will be delayed until FY98 because of changing site conditions. The Ecological Risk Assessment (ERA) will be completed in FY98.

Plan of Action

- Complete RA at Site 5 in FY98
- Complete ERA in FY98
- Complete RD for Site 2 in FY98
- Complete Action Memorandum for Site 17 in FY98

Sites Achieving RIP or RC Per Fiscal Year